Colusa Bridge

Colusa
Colusa County
California

HAER No. CA-7

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington DC

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HISTORIC AMERICAN ENGINEERING RECORD

CA-7

Colusa Bridge
at
Sacramento River

Location:	Spanning the Sacramento River at Bridge Street in Colusa, California.
Date of Construction:	Completed on January 21, 1901. Rehabilitated 1947-1948.
Present Owner:	County of Colusa County Courthouse 546 Jay Street Colusa, California 95932
Present Use:	Vehicular bridge with swing span for river navigation.
Significance:	The turning mechanism, although presently electrically operated, was originally hand-operated, is representative of several swing span bridges throughout California.
Author:	Daniel W. Klar, August 1979.
Information Sources:	Plans for the original structure construction of 1899-1900 are not available. Plans for the 1947 rehabilitation project show much of the original structure, photographs of which are included herewith. The other historic details and chronology was obtained from minutes of Colusa County Board of Supervisors.

On May 16, 1881, the County of Colusa Board of Supervisors made a request to the State of California that a bridge be erected across the Sacramento River. The initial location desired was at the north end of Fifth Street in Colusa, however, was changed to "above the Farmers Warehouse" which is about 400' easterly or downstream from the existing bridge. Advertisement for plans and specifications was made, bids were received and the contract was awarded to the California Bridge Co. on August 31, 1881. Plans are not available; however, from County Records it can be concluded that this was a wooden draw-bridge with wooden piles and foundation. The Contractor completed the work in December 1881 and was paid $14,840.

A bridge tender was hired in 1883 to collect toll fees and open the bridge for river traffic. In 1885, the Colusa Bridge was declared a "free bridge" and charging of the tolls was discontinued.

During the next several years the bridge continued to serve the Colusa area, but not without problems. Frequent repairs were required because of severe flooding of the Sacramento River, and a new floor was installed in 1897.

In February 1899, J. M. Peart, County Surveyor, inspected the bridge and said that the bridge was unsafe and recommended that no expenditure be made to correct this condition. The Board of Supervisors instructed the bridge tender to advise persons crossing the bridge of the unsafe condition.

On April 5, 1899, the Board unanimously passed a motion to build a steel bridge over the Sacramento River. After several months of preparing and revising the plans and specifications, the project was finally advertised for bidding on July 26, 1899, and bids opened on August 11th. The contract was awarded to the Colusa Stone Company, the low bid being in the amount of $42,800, and the contract was signed on August 12, 1899. The work proceeded and was completed and accepted by the County on January 21, 1901. The County Engineer of Record during this construction period was J. W. Kaerth. The original plans for the project are not available, however, specifications are relatively complete.

The bridge is a structural steel, pin-connected Pratt, through truss, similar to several other bridges along the Sacramento River and Northern California. The bridge is 600' long, 22' wide and has a vertical clearance of 13.5'. It consists of 2 - 120' long fixed spans at the north end, 1 - 120' long fixed span at the south end and a 240' swing span, which pivots each about a center pier when opened. Each span is supported by sandstone piers on steel piles. The swing span is supported on a massive pier constructed of sandstone on steel piles. The structural members are lightweight to allow for hand-opening. The swing or central section is formed of two identical 110' trusses connected by a 20' member between these trusses. The turning mechanism consists of a series of gears and shafts which transmit force, which force was originally applied by hand from a turning key in the deck of the bridge. The swing sections rides on a series of small wheels connected by axles to the center post.

The original Colusa Bridge was removed in 1901 by W. A. Farris at a cost to the County of $1,945.00.

Asphalt paving was installed over the wooden deck in October 1904. In March 1907, the bridge was painted according to specifications (in part) as follows:

> "After said bridge is cleaned to the satisfaction and approval of the Surveyor or Superintendent of said work, it shall then receive a thorough coat of Pioneer red lead and pure boiled linseed oil and such lamp black as may be directed by the Superintendent in charge. After the first coat is thoroughly dried, a second coat of similar mixture of Pioneer red lead and pure boiled linseed oil, mixed with and equivalent bulk of Prince's metallic and pure boiled linseed oil mixed in the same consistency as red-lead and oil and this last mixture shall then be thinned, if necessary, to bring the paint to the proper working consistency....all steel work painted - not wood joists or flooring.

Removal and replacement of the wooden floor joists and deck and repainting was required several times during the years to follow.

On July 5, 1922, a contract in the amount of $13,825.00 was awarded to Jenkins & Elton for "Alterations and Repairs - Colusa Bridge". The work included new piles and caps and installations of electric power and an electric motor and appurtenances to operate the bridge and thereby eliminate the hand-operating mechanism.

The specifications (in part) were as follows:

> The motor to operate end wedges shall be located as shown and shall be a Westinghouse, type C.I., slip ring motor with Solenoid brake.
>
> Full load speed 860 R.P.M.
>
> Current 3 phase, 60 cycles, 220 volts.
>
> Controller Westinghouse, Type F.A.
>
> Resistance, Westinghouse Standard for intermittent hoist duty.
>
> The motor for turning the bridge shall be 20 H.P., Westinghouse type C.I., slip ring hoist motor.
>
> Full load speed 680 R.P.M.
>
> Current 3 phase, 60 cycles, 220 volts.
>
> Controller Westinghouse, Type F.A. Reversible.
>
> Resistance, Westinghouse Standard for intermittent hoist duty.
>
> Foot brake.

The alterations and repairs were completed as specified except the hand operating mechanism was merely by-passed and not removed, for a secondary backup system to allow hand operation in emergencies.

In September 1927, a contract was awarded to repair the "South Dolphin" of the bridge. Records are incomplete on these dolphin or fender installations, therefore, exact time is not known. These installations, although are an original part of the bridge, were required at some later date as an effort to protect the bridge piers from catching debris during heavy winter flows in the River. In most instances the nose of the dolphin would catch the debris and cause debris backup. It was and is still a common occurrence for the County crews to dislodge by dynamite or other methods log jams from the dolphins for free river flow downstream. Tremendous pressures are caused by these build-ups which without these dolphins would exert unsafe pressures on the bridge piers.

By 1937, vehicle traffic volume and speeds had increased tremendously as did truck and farm equipment widths and weights. On September 17, 1937, the State Bridge Department issued a bridge inspection report which limited the speed limit to 10 miles per hour for vehicles over 5 tons and 16 ton weight limit for semi-trailer vehicles.

On August 16, 1946, the County Surveyor, Chas. de St. Maurice, presented cost estimates to the Board of Supervisors for improvement on the Bridge to H-15 capacity, strengthening of floor beams, new floor system, truss and bracing where necessary together with painting, fender or dolphin work and other minor improvements.

On September 3, 1946, the Board of Supervisors passes a resolution as follows (in part):

> WHEREAS, the draw bridge across the Sacramento River at Colusa, California, is in a dangerous state of disrepair; and
>
> WHEREAS, it has recently been determined by a survey conducted by the District Bridge Engineers of the Public Roads Administration; by an engineer of the Bridge Department of the California Division of Highways; and by representatives of the Division of Highways District No. 3; and by the County Surveyor (that the bridge) should be closed to heavy traffic; and
>
> WHEREAS, the continued use of said bridge by heavy equipment is dangerous to life and property; and
>
> WHEREAS, plans and specifications are now being prepared pursuant to a reconstruction and re-building of said bridge;
>
> NOW, THERFORE, be it resolved that the Board of Supervisors of the County of Colusa, at a regular meeting of said Board held on September 3rd, 1946, do hereby declare that said bridge be closed to heavy traffic pending the repairs and reconstruction thereof to all vehicles

and conveyances, the total gross weight of which exceeds 16,000 pounds, and that no traffic whatever be permitted to cross over said bridge at a speed in excess of ten (10) miles per hour.

Be it further resolved that, from and after the date hereof, no vehicle or conveyance, the gross weight of which is in excess of 16,000 pounds, shall be permitted to cross over said bridge, and that a violation thereof, or of the speed herein determined, shall be deemed to be in violation of Section 510 and/or 516 of the Vehicle Code of the State of California.

Be it further resolved that due publicity be given this resolution, that appropriate signs be prepared and installed at the entrances of said bridge notifying all persons of the condition of said structure.

Plans and specifications were prepared for the "repair" project by the State Department of Public Works, Division of Highways, and bids were opened on April 2, 1947. The contract was awarded to the low bidder, Lord & Bishop, in the amount of $136,165.00. The project was financed jointly by the County, State and Federal Government. The project got underway and was accepted as completed on January 27, 1949.

In 1955, the requirement for 12 hours advanced notice for opening the draw bridge was approved by the U. S. Corps of Engineers and the position of bridge tender was terminated.

In 1955, the bridge was rated for "all legal loads" by the State Bridge Department.

During the period of 1955 to 1977, river traffic had virtually disappeared and the draw bridge opening was needed only once or twice in 4 to 6 years. Several rather severe accidents occurred to damage the bridge and load limits were established periodically until repairs were completed. The dolphins continued to catch debris and log jams each year of heavy river flows and the County Forces would dislodge the debris as the need arose.

In March 1977, the County commenced efforts to replace the bridge and replacement commenced in July 1979. Prior to completion of the project and removal of the bridge, the County will preserve the record of this structure as follows:

1. Provide archivally processed photographs and negatives of the existing structure and of the "repair" project of 1947 plans.

2. Preserve the entire turning mechanism and appurtenances in the State Park in Colusa.

3. Preserve the bridge house and decorative and ornamental iron work in the City of Williams historical facility.

The Colusa Bridge has had a major influence on the growth patterns and development of the Colusa area and has played an essential roll in Colusa history.